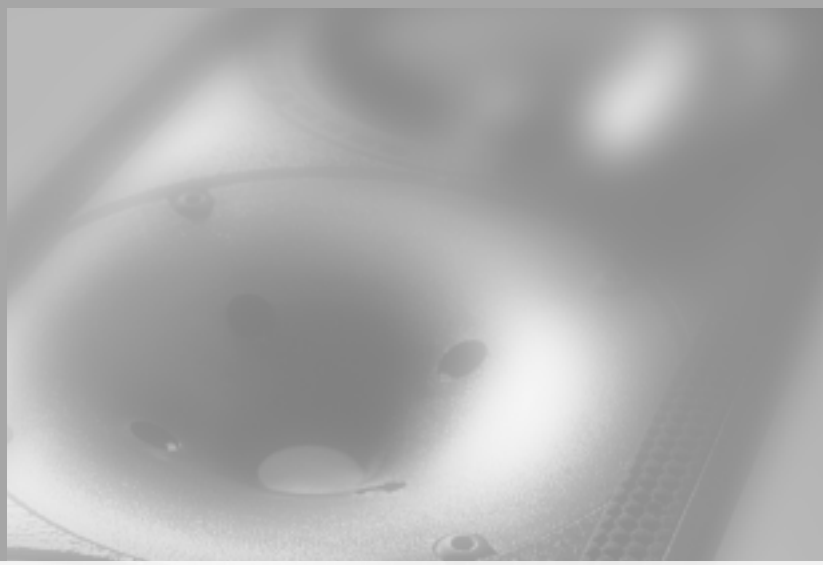
EAW LOUDSPEAKER OWNER'S MANUAL



EAW

NEVERENDING INNOVATION

Loudspeaker Owner's Manual

Congratulations on the purchase of your new EAW loudspeaker. You now own one of the finest professional audio products available - the result of exceptional engineering and meticulous craftsmanship.

This manual is intended for use with all EAW loudspeakers. As such, it contains information that is common to different types of loudspeakers. This includes: safety precautions; installation, set-up, and operating instructions; troubleshooting, maintenance, and service procedures as well as other information specific to their use. Certain information specific to certain classes of loudspeaker, such as powered products, is so noted. Certain loudspeakers with specialized designs have a manual that accompanies this one with additional instructions and other information specific for their use. Thus, both manuals apply to those loudspeakers.

Please read this manual plus any accompanying manual and follow all relevant precautions and instructions. This should allow you to obtain the maximum performance from your new loudspeaker.

Where there are conflicts or overlaps, the information in any accompanying manual supersedes the information in this manual.

Section 1 Important Safety Precautions -Read This First

Read and heed all warnings and safety instructions in this Manual before using the product. Failure to follow all precautions can result in equipment damage, personal injury, or death.

1.1 Important Safety Instructions for Powered Loudspeakers

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. The power plug at the wall must remain accessible to be able to disconnect power from the apparatus.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquid, such as vases, shall be placed on the apparatus.
17. This apparatus has been designed with Class-I construction and must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).
18. This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION: -Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant las limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

19. If the loudspeaker is exposed to changes in temperature and humidity, internal condensation may develop. If powered up with such condensation, electronic failure could result. When exposed to environmental changes, allow the loudspeaker at least 30 minutes to acclimate to a new temperature before connecting to the ac mains and operating.
20. EAW loudspeakers can produce sound levels capable of causing permanent hearing damage from prolonged exposure. The higher the sound level, the less exposure needed to cause such damage. Avoid prolonged exposure to the high sound levels from the loudspeaker.

DANGER: There is danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type. This applies to any loudspeakers with a battery.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT EXPOSE THE APPARATUS TO DRIPPING OR SPLASHING AND DO NOT PLACE OBJECTS FILLED WITH LIQUIDS, SUCH AS DRINKS, ON THE APPARATUS.

CAUTION: This product is energized as long as it is connected to the AC mains supply.

CAUTION: Allow at least six inches of free space all around the amplifier heat sink for sufficient ventilation.

En cas de conflit d'informations, les informations fournies dans les brochures ou manuels accompagnant le produit annulent et remplacent celles de ce manuel.

1. CONSIGNES DE SÉCURITÉ - À LIRE EN PREMIER

Lisez et respectez toutes les consignes de sécurité de ce manuel avat d'utiliser le produit. Le non-respect de ces consignes de sécurité peut entraîner des dommages matériels ou des accidents aux personnes qui peuvent être fatals.

1.1 CONSIGNES DE SÉCURITÉ IMPORTANTES RELATIVES AUX ENCEINTES ACTIVES

Le symbole del'éclair dans le triangle équilatéral prévient l'utilisateur de la présence d'une "tension électrique dangereuse" dans le produit constituant un risque d'électrocution.

Le point d'exclamation dans le triangle équilatéral prévient l'utilisateur de la résence d'instructions importantes relatives à l'utilisation et à la maintenance du produit dans le manuel fourni avec le produit.

1. Lisez ces instructions.
2. Conservez ces instructions.
3. Respectez toutes les mises en garde.
4. Suivez toutes les intructions.
5. Ne pas utiliser cet appareil près d'une source liquide.
6. Nettoyer uniquement avec un tissu sec.
7. Ne pas obstruer les ouïes de ventilation. Installer selon les instructions du fabriquant.
8. Ne pas installer près d'une source de chaleur cmme des radiateurs, convecteurs, poêles, ou près de tout appareil (ce qui comprend les amplificateurs de puissance) produisant de la chaleur.
9. Ne pas modifier la sécurité offerte par les fiches secteur polarisées ou avec mise à la terre. Les fiches polaisées sont équipées de deux lames, dont une plus large que l'autre. Les fiches avec mise à la terre disposent d'un troisième plot. La mise à la terre garantit la sécurité des utilisateurs. Si la fiche fournie ne correspond pas au format de vos prises sectur, consultez un électricien qui pourra les remplacer.
10. La fiche secteur dans la prise murale doit rester accessible pour permettre la déconnexion de l'appareil du secteur.

11. Protéger le cordon secteur de toute dégradation de sorte que les personnes e puissent pas marcher dessus. Veiller à ne pas pincer le cordon secteur, de sa sortie de l'appareil, jusqu'à la connexion dans la prise murale ou autre.
12. Utiliser uniquement les fixations/accessoires spécifiés par le fabriquant.
13. Utiliser uniquemen le chariot, pied, tripode, fixation, ou la table spécifiés par le fabriquant, ou vendus avec l'appareil. Lors de l'utilisation d'un chariot, vérifier la stabilité de l'ensemble chariot/équipement pour éviter toute chute et tout accident.
14. Déconnecter 'appareil du secteur en cas d'orage ou de périodes d'inutilisation prolongées.
15. Confier toutes les réparations à un personnel qualifié. L'appareil doit être réparé lorsqu'il a été endommagé, lorsque le cordon ou la fiche secteur ont été endommagés, los de l'infiltration d'un liquide ou d'un objet dans l'appareil, lorsque l'appareil a été exposé à la pluie ou à l'humidité, s'il ne fonctionne pas correctement, ou s'il a subi une chute.
16. Cet appareil ne doit être exposé à aucune source de projection lquide. Ne pas placer d'objet contenant un liquide sur l'appareil (verre, vase, etc.).
17. Cet appareil répond aux normes de fabrication de Classe I et doit impérativement être connecté à une ligne secteur avec terre.
18. Cet appareil répond aux normes de lasse A/Classe B numériques du Département Canadien des Communications (lorsque celles-ci sont applicables) sur les émissions radio générées par les équipements.

19. Si l'enceinte est exposée à des variations de température et d'humidité, il se peut qu'un condensation interne se produise. La mise sous tension de l'appareil en présence de cette condensation peut entraîner une panne électrique. Si l'appareil est exposé à de telles variations, attendez au moins 30 minutes avant de relier l'appareil au secteu et de l'utiliser.
20. Les enceintes EAW peuvent produire des niveaux sonores capables de causer des dommages irréversibles à l'audition en présence d'une exposition prolongée. Plus le niveau sonore est élevé, moins la durée d'exposition est longue avantde causer de tels dommages. Évitez toute exposition prolongée aux niveaux sonores élevés.

DANGER: Danger d'explosion en cas de non remplacement correct de la pile. Remplacez uniquement par une pile identique ou équivalente. Ceci s'applique à toutes les eceintes équipées d'une pile.

ATTENTION: Pour réduire les risques d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité. Ne pas exposer aux projections liquides et ne pas placer d'objet contenant un liquide sur l'appareil (oisson, verre, etc.).

ATTENTION: Cet appareil est sous tension tant qu'il est connecté au secteur.

ATTENTION: Laisser au moins quinze centimètres autour du radiateur de l'amplificateur pour assurer sa ventilation.

In caso di incongruenze, le informazioi riportate in ogni singolo manuale allegato al prodotto sostituiscono quelle presenti in questo manuale.

1. PRECAUZIONI DI SICUREZZA - DA LEGGERE PER PRIMO

Leggere e rispettare le avvertenze e le norme di sicurezza riportate in questo Manuale prima di uilizzare il prodotto. Il mancato rispetto di ogni precauzione può causare danni all'apparecchiatura, nonché infortuni alle persone o la morte.

1.1 IMPORTANTI NORME DI SICUREZZA PER L'USO DI DIFFUSORI ATTIVI

Il simbolo del lampo con la punta a freccia, racchiuso in un triangolo equilatero, avverte l'utente della presenza di un voltaggio pericoloso non isolato all'interno del prodotto, sufficientemente alto a causare il rischio di shock elettrico alle persone.

Il punto esclamativo all'interno di un tiangolo equilatero, avverte l'utente della presenza di importanti istruzioni operative e di mantenimento (assistenza tecnica) nella documentazione che accompagna il prodotto.

1. Leggere queste istruzioni.
2. Conservare queste istruzioni.
3. Prestare atenzione ad ogni avvertenza.
4. Seguire tutte le istruzioni.
5. Non utilizzare l'unità nelle vicinanze di acqua.
6. Pulire unicamente con un panno asciutto.
7. Non ostruire nessuna apertura adibita alla ventilazione. Effettuare l'installazione seguend le istruzioni del costruttore.
8. L'unità dev'essere posizionata in un luogo lontano da fonti di calore come caloriferi, stufe o altre apparecchiature che producono calore (inclusi gli amplificatori).

9. Non annullare la sicurezza garantita dall'utilizz di spine polarizzate o con messa a terra. Le spine polarizzate sono caratterizzate dalla presenza di due lamine, una più grande dell'altra. Le spine con messa a terra sono caratterizzate dalla presenza di due lamine e di un "dente" per la messa a terra. a lamina maggiore e il "dente" per la messa a terra sono contemplate per garantire la tua sicurezza. Nel caso in cui la spina del cavo incluso non si inserisca perfettamente nella presa, si prega di contattare un elettricista per effettuarne la sostituzioe.
10. La presa di corrente alla parete dev'essere sempre facilmente accessibile, per consentire la disconnessione dell'alimentazione dall'apparato.
11. Proteggere il cavo di corrente dall'essere calpestato o tirato, in particolare la presa e il punto in ui il cavo esce dall'unità.
12. Utilizzare unicamente estensioni/accessori specificati dal costruttore.
13. Utilizzare esclusivamente carrelli, supporti, treppiedi, staffe, o altro specificato dal costruttore o venduto insieme all'unità. Usando un carrell, fare attenzione a non rovesciare l'unità durante la movimentazione.
14. Disconnettere l'unità dalla presa di corrente durante forti temporali o lunghi periodi di inutilizzo.
15. Ogni riparazione deve essere effettuata da personale qualificato. L'assisteza è richiesta quando l'unità risulta danneggiata in qualsiasi modo, ad esempio: cavo di corrente o presa danneggiata, del liquido o degli oggetti sono caduti all'interno, l'unità è stata esposta all'umidità o alla pioggia, l'unità non funziona correttamete oppure è caduta.
16. Non esporre questa unità a gocce o schizzi di alcun liquido. Non posizionare sull'unità oggetti contenenti liquido, come vasi o bicchieri.
17. Questa unità è stata progettata in Classe-I e deve essere collegata ad una presa di corrnte con messa a terra (spina con terzo "dente" per la messa a terra).
18. Questa unità non oltrepassa le limitazioni di Classe A/Classe B (dove applicabile) relative alle emissioni di rumore radio generate da apparecchiature digitali, in conformità alle egolamentazioni riguardanti le interferenze radio emesse dal Canadian Department of Communications.
19. Se il diffusore è sottoposto a variazioni di temperatura e all'umidità, si può sviluppare della condensa all'interno. L'attivazione dell'unità in presnza di condensa, può causare problemi al sistema elettrico. In caso di esposizione a cambiamenti climatici, è necessario permettere al diffusore di acclimatarsi alla nuova temperatura per almeno 30 minuti, prima di collegarlo alla presa di corrente e inizare l'utilizzo.
20. I diffusori EAW sono in grado di generare livelli sonori che possono causare danni permanenti all'udito in caso di esposizione prolungata. Maggiore è il livello del segnale audio, minore è il tempo di esposizione necessario a causare ali danni. Quindi, in caso di utilizzo di livelli sonori elevati, evitare un'esposizione prolungata.

PERICOLO: Se la batteria viene sostituita in modo non corretto, c'è il rischio di esplosione. Effettuare la sostituzione utilizzando una batteria dello sesso tipo o equivalente. Questa norma è valida per qualsiasi diffusore dotato di batteria.

ATTENZIONE: Per ridurre il rischio di incendio o scossa elettrica, non esporre l'unità alla pioggia o all'umidità. Non esporre questa unità a gocce o schizzi di alun liquido, e non posizionare sull'unità oggetti contenenti liquido, come vasi o bicchieri.

CAUTELA: Questa unità è alimentata fino a quando è collegata alla presa di corrente.

ATTENZIONE: Lasciare uno spazio di almeno 15 cm intorno al dissipatore dell'limentatore, per permettere una sufficiente ventilazione.

En caso de cualquier conflicto o duplicación, la información que se adjunte en el manual que acompañe a este documento sustituye a la información contenida en estas páginas.

1. PRECAUCIONES DE SEURIDAD - LEA ESTO PRIMERO

Lea y respete todas las instrucciones de seguridad y aviso que aparezcan en este manual antes de comenzar a usar este aparato. El no cumplir con lo indicado en esas precauciones puede dar lugar a daños en el aparato, daños persoales o incluso la muerte.

1.1 AVISO IMPORTANTE DE SEGURIDAD PARA ALTAVOCES AUTOAMPLIFICADOS

El símbolo del rayo dentro de un triángulo equilátero quiere advertir al usuario de la presencia de "voltajes peligrosos" no aislados dentro de la carcasa de ese aparato, que pueden ser de magnitud suficiente como para constituir un riesgo de descargas eléctricas a las personas.

El símbolo de exclamación dentro de un triángulo equilátero quiere advertir al usuario de la existencia de instrucciones importante relativas al manejo y mantenimiento (reparaciones) en los documentos que se adjuntan con el aparato.

1. Lea estas instrucciones.
2. Siga todas las indicaciones.
3. Cumpla con todas las precauciones.
4. Observe todas las instrucciones.
5. No utilice est aparato cerca del agua.
6. Limpie esta unidad solo con un trapo seco.
7. No bloquee ninguna de las aberturas de ventilación. Instale el aparato de acuerdo a las instrucciones del fabricante.
8. No instale este aparato cerca de ninguna fuente de calor com radiadores, calentadores, hornos u otros aparatos (incluyendo amplificadores) que produzcan calor.
9. No anule el sistema de seguridad que supone un enchufe polarizado o con toma de tierra. Un enchufe polarizado tiene dos bornes de distinto tamaño; uno cn toma de tierra tiene dos bornes iguales y una lámina para la conexión a tierra. El borne ancho o la lámina se incluyen para su seguridad. Si el enchufe que venga con su unidad no encaja en su salida de corriente, póngase en contacto con un electricista ara que sustituya esa salida obsoleta.
10. El enchufe de salida de corriente debe quedar accesible para que pueda desconectar el cable del aparato en cualquier momento y sin problemas.
11. Evite que el cable de corriente pueda ser pisado o que quede aplstado, especialmente en los conectores, receptáculos y en el punto de unión con el aparato.
12. Utilice solo accesorios/complementos especificados por el fabricante.
13. Utilice este aparato solo con un soporte, bastidor o rack especificado por el fabricate o que se venda con el propio aparato. Cuando utilice un bastidor con ruedas, tenga cuidado al mover la combinación soporte/aparato para evitar que pueda volcar.
14. Desconecte este aparato de la corriente eléctrica durante las tormentas o cuando no lo aya a usar durante un periodo de tiempo largo.
15. Consulte cualquier posible reparación solamente al servicio técnico oficial. Este aparato deberá ser revisado cuando se haya dañado de alguna forma, como en el caso de un daño en el cable de corriente o onector, si se ha derramado algún líquido sobre la unidad, si el aparato ha quedado expuesto a la lluvia o la humedad, si no funciona normalmente o si ha caído al suelo.
16. No permita que este aparato quede expuesto a salpicaduras de líquidos, ni coloqueobjetos que contengan líquidos (como un florero, por ejemplo) encima de este aparato.
17. Este aparato ha sido diseñado con una construcción de clase I y debe ser conectado a

una salida de corriente que disponga de una conexión a tierra de protección (la ercera lámina que indicamos antes).

18. Este aparato no sobrepasa los límites de la clase A/clase AB (cualquiera que sea la aplicable) en cuanto a emisión de ruidos de radio de aparatos digitales, de acuerdo a lo que viene estipulado en las leyes sobre inerferencias del departamento canadiense de comunicaciones.
19. Si el altavoz queda expuesto en algún momento a cambios de temperatura o de humedad, puede producirse condensación de agua en su interior. Si enciende la unidad mientras se produce esa condensción, se puede producir una avería eléctrica. Por ese motivo, cuando la unidad quede expuesta a cambios medioambientales, deje un espacio de al menos 30 minutos para que el altavoz se aclimate a la nueva temperatura antes de conectarlo y usarlo.
20. Los ltavoces EAW son capaces de producir niveles de presión sonora capaces de producir daños permanentes en la capacidad auditiva en caso de una exposición prolongada a los mismos. Cuanto mayor sea el nivel de sonido, menor tendrá que ser el grado de exposicin para producir tal tipo de daños. Evite una exposición prolongada a altos niveles de presión sonora de este aparato.

PELIGRO: Existe el riesgo de una explosión si las pilas no son sustituidas de forma correcta. Sustituya las pilas solo por otras igualeso de tipo equivalente. Esto se aplica a cualquier tipo de altavoz que use una pila.

ATENCION: Para reducir el riesgo de incendios o descargas eléctricas, no permita que este aparato quede expuesto a la lluvia o a un elevado nivel de humedad. No permita qe se derrame ningún líquido sobre este aparato, y no coloque aparatos que contengan líquidos encima de la unidad.

PRECAUCION: Este aparato estará cargado con energía mientras siga conectado a una salida de corriente eléctrica.

PRECAUCION: Deje un espaci libre de como mínimo 15 centímetros alrededor del disipador de calor del amplificador para su correcta ventilación.

Sollte es Widersprüche oder Überlappungen geben mit anderen Produktanleitungen geben, so treten diese Passagen an die entsprechenden Stelen in dieser Anleitung.

1. SICHERHEITSHINWEISE - ZUERST LESEN

Lesen und beachten Sie alle Warnungen und Sicherheitsanweisungen dieser Bedienungsanleitung vor der Benutzung des Produkts. Nichtbeachtung dieser Hinweise können möglicherweise zu Schäden am Equipment oder zu Verletzungen bzw. zum Tod von Personen führen.

1.1 WICHTIGE SICHERHEITSANWEISUNGEN FÜR AKTIVE LAUTSPRECHER

Das Blitzsymbol im gleichschenkligen Dreieck ist ein Warnzeichen für das Vorhandensein von nicht isolierter Spannung innerhalbdes Gehäuses. Diese Spannung kann gefährlich hoch sein, so dass die Gefahr eines elektrischen Schlages besteht.

Das Ausrufezeichen im gleichschenkligen Dreieck macht auf einen wichtigen Betriebs- oder Servicehinweis aufmerksam, der in der zum Gerät geörenden Anleitung nachgeschlagen werden kann.

1. Lesen Sie diese Anleitung.
2. Bewahren Sie diese Anleitung auf.
3. Beachten Sie alle Warnhinweise.
4. Befolgen Sie die Anweisungen.
5. Betreiben Sie das Gerät nicht in der Nähe von Wasser.
6. Reinigen Si das Gerät nur mit einem trockenen Lappen.
7. Verdecken Sie keine Lüftungsschlitze. Stellen Sie das Gerät nur nach den Vorgaben des Herstellers.
8. Betreiben Sie das Gerät nicht in der Nähe von Wärmequellen wir Ölradiatoren, Heizungen, Öfen oder anderen Htzequellen (z.B. auch Endstufen).
9. Setzen Sie keine Sicherheitsvorrichtungen wir codierte Stecker oder Schutzleiter außer Kraft. Ein codierter Stecker hat zwei Kontaktstifte, wobei einer breiter ist als der andere. Ein Netzstecker mit Schutzleiterkontak hat zwei Kontaktstifte und zusätzlich einen dritten als Schutzleiterkontakt. Der breitere Kontakt bzw. der Schutzleiterkontakt ist für Ihre Sicherheit da. Wenn der Stecker nicht in Ihre Netzsteckdose passt, lassen Sie sich von einem zugelassenen Elektrobtrieb die veraltete Steckdose austauschen.
10. Der Netzstecker an der Wand muss leicht erreichbar sein, um das Gerät vom Stromnetz trennen zu können.
11. Verlegen Sie das Netzkabel nicht im Durchgangsbereich und schützen Sie es vor Knicken, besonders im Breich der Stecker oder im Bereich, wo das Kabel aus dem Gehäuse austritt.
12. Benutzen Sie ausschließlich vom Hersteller empfohlenes Zubehör.
13. Benutzen Sie ausschließlich von Hersteller empfohlene Transportvorrichtungen, Stative, Montagebügel oder Untegestelle. Bei Benutzung einer Transportvorrichtung sollte darauf geachtet werden, dass eine erhöhte Verletzungsgefahr durch Umkippen besteht.

14. Trennen Sie das Gerät während eines Gewitters oder eines Zeitraums längerer Nichtbenutzung vom Stromnetz.
15 Überlassen Sie alle Servicearbeiten qualifizierten Technikern. Ein Service ist erforderlich, wenn das Gerät einen Defekt aufweist, das Netzkabel oder der Netzstecker beschädigt ist, Flüssigkeit in das Gehäuse eingedrungen ist, das Gerät Regen oder Feuchtgkeit ausgesetzt wurde, das Gerät nicht einwandfrei funktioniert oder heruntergefallen ist.
16. Dieses Gerät das weder Tropfen oder Spritzer von Flüssigkeiten ausgesetzt werden noch dürfen mit Flüssigkeit gefüllte Gefäße wie Vasen auf das Gerät gestellt wrden.
17. Dieses Gerät nach den Vorgaben der VDE Richtlinien gefertigt und benötigt daher eine Schutzerdung über das Netzkabel bzw. die Netzsteckdose (mit drittem Schutzleiterkontakt).
18. Dieses Gerät erfüllt die Class A/Class B Richtlinien (je nachdem, elche zutrifft) in Bezug auf die Aussendung von Störstrahlung, die von digitalen Geräten ausgehen, wie sie in den Störstrahlungsrichtlinien der kanadischen Kommunikationsbehörde festgelegt sind.
19. Ist der Lautsprecher starken Temperatur- bzw. Feuchtigketsschwankungen ausgesetzt, kann im Innern Kondensation auftreten. Durch die entstehende Feuchtigkeit können elektronische Schaltungen ggf. nicht einwandfrei arbeiten. Wenn der Lautsprecher solchen Umgebungsbedingungen ausgesetzt ist, sollten mindestens 30Minuten vergehen, bevor die Netzspannung angeschlossen und der Betrieb aufgenommen wird.
20. EAW Lautsprecher können Schalldruckpegel produzieren, die permanente Gehörschäden nach sich ziehen, wenn man sich diesen Pegeln zu lange aussetzt. Je höher der Pgel, desto weniger Zeit wird benötigt, um einen Gehörschaden zu verursachen. Vermeiden daher das Hören hoher Schalldrücke über längere Zeiträume.

VORSICHT: Von einer falsch eingesetzten Batterie geht Gefahr aus. Ersetzen Sie Batterien nur mit dem gleiche oder gleichwertigen Typ. Diese gilt für alle Lautsprecher mit Batterien.

WARNUNG: Um Feuer oder einen elektrischen Schlag zu vermeiden, setzen Sie das Gerät weder Regen noch Feuchtigkeit aus. Vermeiden Sie, dass Tropfen oder Spritzer an das Gerät gelangn. Stellen Sie keine mit Flüssigkeiten gefüllten Behälter wie z.B. Trinkgläser auf das Gerät.

GEFAHR: Dieses Produkt ist so lange im Betriebszustand, wie Netzspannung anliegt.

GEFAHR: Lassen Sie mindestens 15 cm Freiraum um den Kühlkörper, damit die Luf ungehindert zirkulieren kann.

1.2 EC Declaration of Conformity

Eastern Acoustic Works, as the manufacturer, hereby certifies that, in their delivered versions, all un-powered (passive) loudspeakers comply with the provisions of the directives and standards listed below.

European Council Directive on Low Voltage, 73/23/EEC
EN 60065:2002 Audio, video, and similar electronic apparatus - safety requirements
European Council Directive on Electromagnetic Compatibility 89/336/EEC
EN 50081-1:1992 Emissions limit for residential, commercial, and light industrial equipment (generic standard)
EN 50082-1:1997 Immunity requirements for residential, commercial, and light industrial equipment (generic standard)

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Issued: 25 July 2005

NOTE: EC Declaration of Conformity for powered loudspeakers is found in their accompanying owner's manuals.

1.3 Rigging: Mounting / Suspension

DANGER: Mounting or overhead suspension of any heavy load can result in serious injury and equipment damage. This work should be done by qualified persons following safe rigging practices in accordance with all applicable safety and construction standards. Such persons must determine the required load ratings and design factors. They must determine the mounting or suspension method that meets static, dynamic, shock, and any other load requirements. All such work must be done in accordance with and in compliance with all federal, state, and local regulations governing such work.

CAUTION: The user assumes all responsibility and liability for the proper design, installation, and use of any rigging and mounting systems for EAW loudspeakers.

CAUTION: Accessory items are available from EAW and from aftermarket suppliers to facilitate suspension, wall, ceiling, or other rigging. When using these items, review all enclosed documentation and carefully follow all instructions and safety precautions.

DANGER: L'installation ou la suspension de charges élevées peut être source d'accidents aux personnes et de dommages aux équipements. Cete tâche doit être confiée à un personnel qualifié en suivant les règles et normes en vigueur. Ce personnel doit déterminer les taux de charges, les efforts et les applications à mettre en œuvre pour garantir le respect des normes de sécurité en vigueur. Is doivent déterminer la méthode de montage ou de suspension répondant aux exigences imposées par tous les paramètres statiques, dynamiques, de choc, etc. Les solutions mises en œuvre doivent répondre aux lois en vigueur.

ATTENTION: L'utilisateur assume tute responsabilité et assume toutes les conséquences liées à la conception, à l'installation et à l'utilisation correcte de ces systèmes de montage/suspension utilisés avec les enceintes EAW.

ATTENTION: EAW et d'autres fabricants sont en mesure de vous ofrir les équipements nécessaires pour faciliter la suspension, l'installation murale, au plafond, etc., de ces équipements. Lorsque vous utilisez ces éléments, lisez avec soin toutes les documentations fournies et respectez toutes les instructions et consgnes de sécurité.

PERICOLO: Il montaggio o la sospensione di qualsiasi carico pesante può causare seri infortuni e danni alle apparecchiature. Quindi, tali operazioni devono essere effettuate da personale qualificato seguendo ogni procedura conforme a tuti gli standard costruttivi e di sicurezza applicabili. Il personale qualificato deve determinare l'entità del carico e ogni fattore progettuale della configurazione d'installazione. Inoltre, deve determinare il metodo di montaggio o sospensione conforme i requisiti statici, dinamici e ogni altro requisito relativo al carico. Ognuna di queste operazioni deve essere eseguita in conformità alle norme federali, statali e locali vigenti, relative a tali procedure.

ATTENZIONE: L'utente si assume ogni responsailità relativa alla corretta configurazione, installazione e impiego asi sistema di diffusori EAW montati/sospesi.

ATTENZIONE: Accessori utili alla sospensione, al montaggio a parete o soffitto, e alla creazione di configurazioni "rig" sono dispnibili da EAW e da fornitori specializzati. Utilizzando tali accessori, consulta ogni documentazione acclusa seguendo attentamente ogni istruzione e ogni precauzione di sicurezza.

PELIGRO: El montaje o suspensión de cualquier aparato pesado puede dar lugr a heridas y daños en el aparato. Este tipo de procedimientos solo debe ser realizado por técnicos cualificados y que cumplan con las normativas de seguridad establecidas para este tipo de instalaciones. Estos profesionales serán los que deberán determinr los coeficientes de carga y factores de diseño. Deberán determinar también el método de montaje o suspensión que mejor se adapte a los requisitos estáticos, dinámicos, de sacudidas y de carga. Todos estos procesos deben ser realizados de acuerdo a todaslas normativas locales, nacionales e internacionales que sean aplicables.

PRECAUCION: El usuario asume toda la responsabilidad y obligaciones inherentes al diseño, instalación y uso adecuado de cualquier montaje / suspensión aérea de sistemas de altavoce EAW.

PRECAUCION: Tanto en EAW como en los comercios habituales de ramo tiene disponibles los accesorios necesarios para la suspensión, montaje en pared o en techo o fijación de cualquier otra manera. Cuando utilice este tipo de piezas accesorias, revisetoda la documentación que venga con ellas y siga todas las instrucciones de uso y seguridad.

GEFAHR: Das Aufhängen oder die Montage von schweren Lasten stellt eine erhöhte Verletzungsgefahr sowie ein erhöhtes Beschädigungspotential dar. Daher darf diese rbeit nur von entsprechend qualifizierten Personen unter Beachtung der gängigen Vorschriften durchgeführt werden. Diese Personen sind in der Lage, die Belastung einzuschätzen. Sie legen die Montage- bzw. Aufhängungsmethode fest unter Beachtung aller statichen und dynamischen Lastanforderungen. Diese Arbeiten müssen zwingend unter Beachtung und Einhaltung aller nationalen oder lokalen Vorschriften ausgeführt werden.

GEFAHR: Der Betreiber ist für alle Belange der Montage bzw. der Aufhängung verantwortlich

GEFAHR: Geeignetes Zubehör zur Aufhängung oder Montage ist von EAW oder anderen Zubehöranbietern erhältlich. Bei Verwendung dieser Zubehörteile beachten Sie bitte die mitgelieferte Dokumentation und befolgen Sie alle Anweisungen und Sicherheitshinweise.

1.4 Purchaser and User Responsibility

It is the responsibility of the purchaser and end-user of EAW products to:

1. Read the product instructions and labels and follow them.
2. Inspect the product immediately upon receipt as well as before and after each use.
3. Receive training in the proper installation and use of the equipment. Proper training includes safety procedures, limitations of the equipment, inspection of the equipment, and risk management. If you are not competent in the use of a product, do not use it.
4. Determine if the product is suitable for its intended use and that it meets all applicable standards and regulations.
5. Use adequate safety precautions and back-up systems.
6. Practice risk management at all times.

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Section 2 Unpacking

2.1 Shipping Damage

You should have visually inspected the outside of the shipping carton and noted any damage on the shipping bill you signed. After unpacking, if you find concealed damage to the loudspeaker, save the packing materials for the carrier's inspection, notify the carrier immediately and file a shipping damage claim. Although EAW will help in any way possible, *it is always the responsibility of the receiving party to file any shipping damage claim.* The carrier will help prepare and file this claim.

2.2 Returning Product to EAW

If this loudspeaker must be returned to EAW, contact the EAW Service Department for a Return Authorization. Use the original shipping carton and packing materials. If the shipping carton is damaged, contact EAW for a new carton at a nominal cost. EAW will not be responsible for damage caused by inadequate packing.

All units returned must have a factory Return Authorization Number. Any units received without a Return Authorization Number assigned and written prominently on the outside of the carton will be refused.

Section 3 Overview

This loudspeaker is intended for professional use. The construction, components, and hardware have been designed to provide robust, reliable performance for its intended applications. Please ensure that you fully understand proper installation and operation before use.

You will need to perform the following general tasks to properly put the loudspeaker into service. Details concerning each task are provided in this manual.

1. Design and install a rigging system to support the loudspeaker in its intended location and aimed in the desired direction.
2. Connect the loudspeaker to a power amplifier(s) selected to provide the output needed for the loudspeaker in the application. In the case of powered loudspeakers provide an ac mains supply as specified for the particular loudspeaker.
3. Set-up and adjust system gain, signal processing, and limiting, as needed to maximize the loudspeaker's performance.
4. Provide training to operate the loudspeaker within its limits.
5. Provide regular inspection and maintenance to maintain the integrity of the installation and performance of the loudspeaker system.

Section 4 Rigging / Mounting / Suspension

CAUTION: The rigging information provided herein is not all-inclusive. Rather it is intended as a guide to the work scope involved and to some of the more important issues that must be considered.

4.1 Definitions

For brevity purposes, "rigging" is used herein as a general term referring to fixed mounting and suspension as well as the hardware used for such mounting and suspension. It also applies to temporary and permanent installation.

Nous utilisons le terme général "montage" dans ce document pour décrire le montage, l'installation fixe ou la suspension des équipements ainsi que pour décrire les éléments utilisés pour ce montage et suspension. Ce terme s'applique aussi bien aux installations temporaires que permanentes.

Per semplificazione, la parola "rigging" è utiizzata come termine generico riferendosi al montaggio fisso o alla sospensione, oltre ad indicare l'hardware impiegato per tali nstallazioni. È applicabile anche relativamente a installazioni temporanee o permanenti.

De forma resumida, el término "anclje" se usa aquí de forma general para hacer referencia al montaje fijo así como a la suspensión aérea del hardware usado en dichomontaje fijo o suspensión. Se aplica por igual tanto a las instalaciones fijas como a las temporales.

Wenn nachfolgend von "Rigging" die Rede ist, ist hiermit die Aufhängung oder feste Montage bzw. das hierzu benötigte Material gemeint in temporären oder ermanenten Installationen gemeint.

4.2 Rigging Information

For detailed information about rigging, the following publications are recommended:

"Entertainment Rigging: A Practical Guide for Riggers, Designers, and Managers"
by Harry Donovan; Harry M. Donovan, 2002
"An Introduction to Rigging in the Entertainment Industry"
by Chris Higgs; Entertainment Technology Press, June 2002
"Rigging for Entertainment: Regulations and Practice"
by Chris Higgs; Entertainment Technology Press, April 2003

DANGER: If there is any question about the integrity or capability of any part to perform its intended function when used to suspend or mount a loudspeaker, immediately remove it from service for repair or replacement.

WARNING: Do not under any circumstances use a loudspeaker's handles to support the weight of the loudspeaker except for their intended use: hand carrying. The handles are not rated to support the load of the loudspeaker for temporary or permanent installation.

WARNING: Rigging loudspeakers is an extremely serious matter with potentially lethal consequences should anything go wrong. It is of vital importance that this task is done by persons qualified to do so and who have a full understanding of all factors involved, with safety as the number one priority. Only persons with the knowledge of and experience with proper hardware and safe rigging techniques should attempt to suspend or mount loudspeaker systems overhead. For all questions involving loudspeaker rigging, consult a licensed, qualified Professional Engineer or Professional Rigger. All rigging work must be done in accordance with and in compliance with all applicable regulations governing such work.

DANGER: En présence du moindre doute quant à l'intégrité ou la capacité d'un ou plusieurs éléments à rempli la fonction qui lui est assignée lors du montage des enceintes, retirez immédiatement ce ou ces éléments de la strucure, faites-les vérifier ou réparer par un personnel compétent, ou remplacez-les.

MISE EN GARDE: Vous ne devez jamais utiliser les poignés des enceintes pour supporter leur poids. Ces poignées ne servent qu'à une seule chose, les porter à la main. Les pignées n'ont pas été conçues pour supporter le poids de l'enceinte - que ce soit en installation temporaire ou permanente.

ATTENTION: L'intallation des enceintes est un sujet extrêmement sérieux dont les conséquences peuvent être fatales en cas d'accidet. Il est vital que cette tâche soit confiée à des personnes qualifiées conscientes de tous les facteurs en jeu, et dont la sécurité est la riorité absolue. Seules les personnes possédant l'expérience et les connaissances nécessaires sur l'installation crrecte en toute sécurité, avec les équipements adaptés doivent entreprendre l'installation, le montage ou la suspension de systèmes d'enceints. Pour toutes les questions relatives au montage des enceintes, consultez un ingénieur ou un professionnel qualiié et agréé. Toutes les installations et tous les montages doivent être exécutés selon les normes relatives à de telles installations.

PERICOO: Se dovesse esistere qualche dubbio relativamente all'integrità o alla capacità di qualsiasi parte utilizzata ell'installazione di sistemi di diffusori, di essere in grado di espletare la funzione alla quale è preposta, è necessario rimuoverla per verifcarne la condizione ed effettuare la riparazione o la sostituzione.

ATTENZIONE: In nessuna circostanza si devefare uso della maniglia integrata nel diffusore per sorreggere il peso del diffusore stesso, ad eccezione dell'impiego a cui la maniglia è prepota: il trasporto a mano. Le maniglie non sono testate per supportare il peso del diffusore nell'ambito di instllazioni temporanee o permanenti.

ATTENZIONE: L'installazione dei diffusori è un'operazione molto seria, che può implicare conseguenze potenzialente letali se eseguita in modo non corretto. È di vitale importanza che questa operazione sia effettuata da ersonale tecnico qualificato, che sia perfettamente a conoscenza di ogni fattore implicato ponendo la sicurezza come principale priorità. Solo ilpersonale con la necessaria conoscenza e esperienza relativamente alle tecniche d'installazione in sicurezzae all'hardware necessario può eseguire il montaggio o la sospensione di sistemi di diffusione. Per qualsiasi domanda o chiarimento relativamente al'installazione di sistemi di diffusori, contattare Ingegneri o Installatori Professionisti qualificati. Ogn procedura relativa all'installazione deve essere eseguita in conformità alle norme applicabili che regolamentano questi tipi di operazioni.

PELIGR: Si tiene cualquier duda acerca de la integridad o capacidad de cualquier pieza o aparato para realizar l función para la que ha sido diseñado a la hora de usarlo para el anclaje de un altavoz, sustitúyalo inmediatamente por otro y/o envíelo al servicio écnico para su reparación.

PRECAUCION: Bajo ningún concepto use las asas de un altavoz para ninguna otrafunción que no sea para la que han sido creadas: para que pueda sujetar y levantar el altavoz con sus manos. Estas asas no han sido diseñadas para soprtar el peso del altavoz en instalaciones temporales o fijas.

PRECAUCION: El anclaje y montaje de altavces es una tarea extremadamente seria, que implica

una serie de peligros mortales potenciales en caso de que se realice de forma incorrecta. Resulta devital importancia que esta tarea sea realizada únicamente por técnicos especialistas en este tipo de intalaciones y que tengan un pleno conocimiento de todos los factores implicados, teniendo la seguridad como su primera prioridad. Solo aquellas personas ue tengan los conocimientos y la experiencia suficiente en este tipo de instalaciones deben realizar ete tipo de suspensión o montaje aéreo de altavoces por encima de la altura de la cabeza. Para cualquier cuestión relativa a este tipo de instalaciones, cnsulte a un técnico. Cualquiera de estas tareas y montajes deben ser realizadas de acuerdo a todas la normativas aplicables.

GEFAHR: Wenn ein Zweifel in Bezug auf die Sicherheit bei einem Bauteil aufkommt, das zum Rigging eines Lautsprechers verwendet weden soll, so muss dieses Bauteil sofort repariert oder ersetzt werden.

WARNUNG: Verwenden Sie unterkeinen Umständen die Griffe eines Lautsprechers zu anderen Zwecken als dem ursprünglichen: Tragen beim Transport des Lautsprechers. Die Griffe sind nicht fr das Rigging in temporären oder permanenten Installation ausgelegt.

WARNUNG: Das Rigging von Lautprechern ist eine sehr ernste Angelegenheit, die rechtliche Konsequenzen nach sich ziehen kann. Daher ist es unerlässlich, dass diese Aufgabe nur von qualifziertem Personal ausgeführt wird, das alle auftretenden Faktoren kennt und für das die Sicherheit n oberste Stelle steht. Nur Personen mit entsprechender Ausbildung im Bereich des Riggings dürfen diese Arbeiten ausführen. Daher sollte für alle Belange, di das Rigging betreffen, eine qualifizierte Fachkraft konsultiert werden. Das Rigging muss zwingen unter Beachtung und Einhaltung aller nationalen oder lokalen Vorschriften ausgeführt werden.

4.3 Working Load Limits

To maintain the Working Load Limit (WLL) for the rigging points on EAW loudspeakers, support each loudspeaker independently of any other. This means do not use one loudspeaker to support another.

Most EAW loudspeakers have one or more types of rigging fittings, integral with the enclosure. Depending on the loudspeaker, these will be suitable for fixed mounting, suspension, or both. The WLLs for these fittings are defined and listed on the Mechanical Drawing found on the specification sheet for the loudspeaker. If this information is missing from the drawing, contact the Application Support Group. The WLLs do not extend to any rigging hardware attached to these fittings nor to the connection of that hardware to structure.

The WLLs listed are the maximum load that should ever be applied to the fittings under any condition. The WLL assumes a straight, tensile pull, perpendicular to the enclosure surface where the fitting is mounted and that the enclosure and fittings are in like-new condition.

The WLL is the Ultimate Strength (breaking or failure point) divided by the Design Factor. The WLL does not apply to any product that has been altered from its manufactured condition.

If these conditions specified for a WLL are not met, the WLL may require a significant reduction.

Exceptions:

1. Where a WLL is specified in an accompanying manual for a specific loudspeaker model, that rating supersedes this section.
2. Where the loudspeaker is specifically designed for suspension in touring applications.

4.4 Design Factor

The Design Factor for all WLLs is a minimum of 8:1.

Section 5 Rigging Design

5.1 Rigging Design Practices

Rigging a loudspeaker requires determining:

1. The rigging methods and hardware that meet static, shock, dynamic, and any other load requirements for supporting the loudspeaker from structure.
2. The design factor for and the required WLL (Working Load Limit) for this support.

EAW strongly recommends the following rigging practices:

1. Documentation: Thoroughly document the design with detailed drawings and parts lists.
2. Analysis: Have a qualified professional, such as a licensed Professional Engineer, review and approve the design before its implementation.
3. Installation: Have a qualified professional rigger do the installation and inspection.
4. Safety: Use adequate safety precautions and back-up systems.

5.2 Rigging Hardware and Accessories

Rigging EAW loudspeakers will invariably require hardware not supplied by EAW. Various types of load-rated hardware are available from a variety of third-party sources. There are a number of such companies specializing in manufacturing hardware for, designing, and installing rigging systems. Each one of these tasks is a discipline in its own right. Because of the hazardous nature of rigging work and the potential liability, engage companies that specialize in these disciplines to do the work required.

EAW does offer certain accessory rigging items, primarily for attachment to the hardware integral with the loudspeaker. Some items, such as eyebolts, can be used with a variety of products. Others, particularly U-brackets and similar hardware, can only be used with a specific product or product Series. While these accessories are intended to facilitate installation, the wide variety of possible installation conditions and array configurations do not permit EAW to determine their suitability or load rating for any particular application.

EAW is not in business of providing complete rigging systems, either as designers, manufacturers, or installers. It is the responsibility of the installer to provide a properly engineered, load-certified rigging system for supporting the loudspeaker from structure as outlined in Section 5.

Section 6 Amplifier Power Requirements

This section does not apply to powered loudspeakers.

6.1 Selecting an Amplifier

As is true of all professional loudspeaker systems, the performance of the loudspeaker depends on an amplifier delivering an adequate supply of clean power. Determining the appropriate power amplifier wattage for a given loudspeaker and application is a subject of some debate within the audio industry. As such, there is no single answer to the question of what amplifier power you should use for a particular loudspeaker. The "Rule-of-Thumb" is an all-purpose metric commonly used for selecting amplifier power. A more exacting approach involves three separate and distinct issues: power ratings, appropriate amplifier size, and preventing loudspeaker damage. These are discussed within this section.

6.1.1 Rule-Of-Thumb For Selecting An Amplifier

If the loudspeakers are used for professional application with competent operators, a rule of thumb can be applied. Where the full output capabilities of the loudspeakers may be needed to achieve appropriate acoustic output levels, EAW recommends amplifiers with ratings up to 1.4 times the voltage, which equals twice the wattage, listed in the loudspeaker specifications. This provides a peak voltage capability of 6 dB above the specified rms voltage limit. This assumes the audio signals will have a peak to average ratio in excess of 6 dB, which is usually, but not always, true. Under this condition, the thermal limits are unlikely to be exceeded. While this rule of thumb is consistent with the EAW's testing parameters, it does NOT guarantee trouble-free operation. See Section 6.1.4

In some cases, the amplifier power determined by the Rule-of-Thumb may not be available in acceptable products. In this event, select an amplifier within approximately +/-25% (+/- 1 dB) of the desired power. In some cases, particularly subwoofers or multiple LF subsystems powered off one amplifier channel or an amplifier in bridged mode, the desired power will exceed that available in acceptable products. In this event, select the largest amplifier possible.

WARNING: The power amplifier sizes recommended by the above rule of thumb are capable of continuous output levels that can cause damage to or failure of the drivers. Exercise caution in operation to avoid exceeding the specified, maximum rms voltage limits. This is especially true when reproducing recorded music. Many recordings have very low peak to average ratios such that much higher continuous levels are possible before amplifier clipping.

6.1.2 Power Ratings

The voltage and/or power listed in EAW's specifications mean that the loudspeaker has passed EAW's standard power-handling test. In this test, the loudspeaker is "exercised" to a point of damage or failure. The voltage and/or power ratings resulting from this test are intended to be used as a point of comparison with the ratings of other loudspeakers. This rating does not necessarily correspond to the best amplifier size to use nor is it a measure of the "safe" amplifier size to use depending on the actual operating conditions.

6.1.3 Selecting An Appropriate Amplifier Size

The amplifier for your loudspeaker should be sized according to both the sound levels required and the type of audio signals that will be reproduced. This requires a considered analysis for the particular application. If you are unsure of how to determine these parameters, consult a qualified audio professional or contact EAW's Application Support Group.

For audio signals with low dynamics, such as heavy metal rock or other highly compressed recorded music, an amplifier with a rating at or below the power handling specification might be needed to avoid overstressing the loudspeaker's thermal capabilities. On the other hand, a loudspeaker rated at 500 W continuous (or rms, continuous, etc.), used to reproduce only background music at low levels, may only need a small 25 W amplifier to reach the desired acoustic level. Thus, the power amplifier size actually required for a given application may be considerably more or considerably less than the amplifier wattage specified as the power handling.

6.1.4 Preventing Loudspeaker Damage

Preventing damage to or failure of a loudspeaker is not a function of amplifier size nor the loudspeaker's power rating. Preventing damage is a function of operating an audio system so that a loudspeaker is not stressed beyond its limits. If an audio system is operated improperly, damage to or failure of a loudspeaker can occur even with an amplifier sized well below the loudspeaker's power rating. Contrarily, if an audio system is operated properly, damage to or failure of a loudspeaker can be avoided even with an amplifier sized well in excess of the loudspeaker's power rating.

It is the responsibility of the audio system operator to ensure that all equipment in the system is operated within its capabilities. This is the only way to ensure that loudspeakers are not stressed beyond their limits to the point of damage or failure. See Section 10.1.

Section 7 Locating the Loudspeaker

7.1 Placement Precautions for Powered Loudspeakers

7.1.1 Ambient Temperatures

If the ambient temperature is high, the amplifiers may overheat if running the system at high output levels. In this case, aiming a fan at the heat sink to increase the airflow past it will usually help.

7.1.2 Temperature Changes

If the loudspeaker is exposed to a rapid temperature change of more that 15° F / 8° C, internal condensation may develop. A good example of this is moving the loudspeaker from outside summer conditions to an air-conditioned environment. Allow the loudspeaker at least 30 minutes to acclimate to any ambient temperature changes before connecting it to the ac mains and operating it. Allow for longer acclimation times for larger temperature changes.

7.1.3 Thermal Switch

To avoid heat damage, amplifiers have a built-in, thermal switch that activates if they

overheat and puts them into a standby mode. When the amplifiers have cooled down to a safe operating temperature, the thermal switch will reset and the loudspeaker will resume normal operation. An amplifier Fault indicator will illuminate if a thermal switch has been activated.

7.1.4 Heat Sink Ventilation

The amplifiers are convection cooled by a large heat sink on the rear of the enclosure. For efficient cooling, it is important to allow at least six inches of free space all around the heat sink area behind the loudspeaker. Air should be able to flow freely from below the heat sink, up around it, and then above the enclosure.

High ambient temperatures can cause amplifiers to overheat, even when operating well below full output. In such cases, aim a fan at the heat sink area to increase the airflow and thus assist with cooling.

7.1.5 Stage Monitor Applications

If you use the loudspeaker on its side for stage monitor applications for vocal monitoring, we recommended that you use at least a 12 dB per octave HPF (High Pass Filter) on the signal, 90 Hz to 100 Hz being a good guideline. This will allow more power for useful monitor frequencies.

Having one side of the enclosure on the floor does restrict the airflow for cooling the amplifiers. In more extreme ambient temperatures of high level operation, an HPF can reduce unwanted lower frequencies from being amplified. This will reduce the overall power and thus reduce the possibility of overheating the amplifiers.

7.1.6 Signal Levels

Keep signal levels low enough so that neither the Clip nor Limit Active indicators are blinking frequently or are on continuously. If they are, turn down the input signal level to avoid overheating the amplifiers.

7.2 Placement Precautions For All Loudspeakers

7.2.1 Outdoor Weather Protection

CAUTION: Do not permanently mount EAW loudspeakers in outdoor environments, unless they are WP versions, normally special ordered. If using powered loudspeakers temporarily outdoors, protect the loudspeaker from moisture. If rain is expected, make sure the loudspeaker is protected by a rain cover.

7.2.2 Magnetic Fields

Loudspeakers generate magnetic fields, unless specifically designed for audio-visual applications where drivers are magnetically shielded to limit the extent of the magnetic field. Therefore, place a loudspeaker at least 2 ft (0.6 m) or more from any TV set or computer monitor. If it causes distortion or a change in the display color, move it further away. Do not place any audio, video, or computer magnetic media near the loudspeaker as the loudspeaker's magnetic field may damage the data.

Section 8 Signal Connections

CAUTION: In spite of the listings below, check the input panel labeling to verify proper connections because of possible design differences or production changes.

8.1 Audio Input Connectors - Unpowered Loudspeakers

8.1.1 Neutrik® NL and Cannon AP® Connectors

The input connector on the loudspeaker will be one of following types with the pin connections as listed.

NL4 Full Range:	
Pin 1-	Negative
Pin 1+	Positive
Pin 2-	No connection
Pin 2+	No connection

NL4 Bi-amplified:	
Pin 1-	LF or LF/MF negative
Pin 1+	LF or LF/MF positive
Pin 2-	HF or MF/HF negative
Pin 2+	HF or MF/HF positive

NL4 Single-amplified Subwoofers	
Pin 1-	Driver negative
Pin 1+	Driver positive
Pin 2-	Loop through
Pin 2+	Loop through

Except LA118z, LA128z, LA400, SBX220, DCS2, FR250z
pin 2– = negative
pin 2+ = positive
pins 1–/+ = loop through.

NL4/AP4 Dual-amplifier Subwoofers	
Pin 1-/1	Driver 1 negative
Pin 1+/2	Driver 1 positive
Pin 2-/3	Driver 2 negative
Pin 2+/4	Driver 2 positive

NL4 MQ LF Systems	
L-Pin 1–	Driver 1 negative
L-Pin 1+	Driver 1 positive
L-Pin 2–	Driver 2 negative
L-Pin 2+	Driver 2 positive
R-Pin 1–	Driver 3 negative
R-Pin 1+	Driver 3 positive
R-Pin 2–	Driver 4 negative
R-Pin 2+	Driver 4 positive

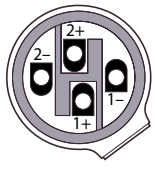
L–Pin = Left NL4; R–Pin = Right NL4
3 Drivers: 1-3 = top to bottom
4 Drivers: 1- 4 = top to bottom

NL8 Tri-amplified	
Pin 1–	No connection or LF1 negative
Pin 1+	No connection or LF1 positive
Pin 2–	LF negative or LF2 negative
Pin 2+	LF positive or LF2 positive
Pin 3–	MF negative
Pin 3+	MF positive
Pin 4–	HF negative
Pin 4+	HF positive

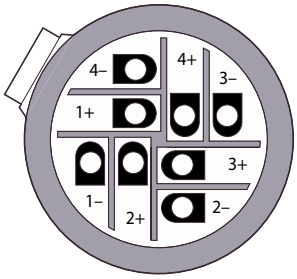
AP4 Single-amplified	
Pin 1	Negative
Pin 2	Positive
Pin 3	No connection
Pin 4	No connection

AP4 Bi-amplified	
Pin 1	LF negative
Pin 2	LF positive
Pin 3	HF negative
Pin 4	HF positive

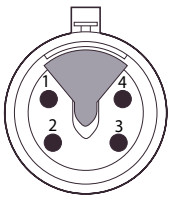
NOTE: Ensure that the connection polarity is correct. To do this, connect with the "+" terminal on the loudspeaker to the like terminal on the amplifier, normally labeled: "+", positive, or hot. Similarly connect the "-" terminal on the loudspeaker to the like terminal on the amplifier, normally labeled, "-", negative, or ground.



Neutrik® NL4



Neutrik® NL8



AP4

Cable Connector Views From Wiring Side

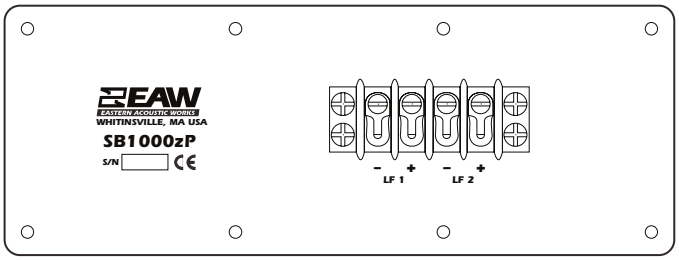
8.1.2 Two Connectors

If the loudspeaker has two NL or AP type connectors, they are wired in parallel so you can "Y-connect" multiple loudspeakers together to a single amplifier channel. This is commonly known as "daisy chaining." This will lower the load impedance on the amplifier. This can be calculated by this formula:

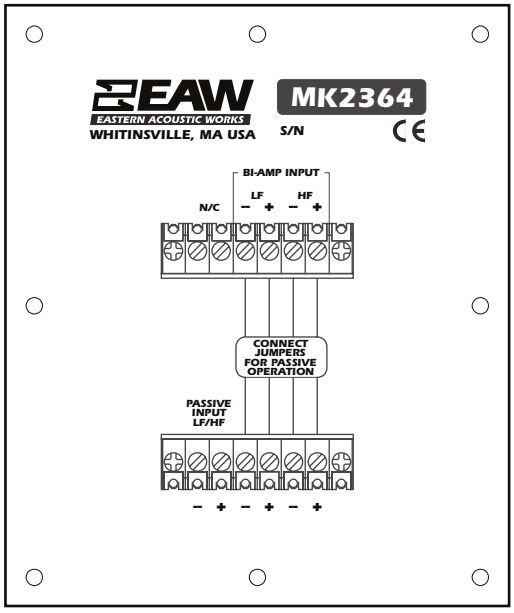
(Nominal impedance single loudspeaker) / (number of loudspeakers daisy chained)

8.1.3 Barrier Strip or Terminal Block Connectors

The proper connections are marked for each terminal on the loudspeaker input label, normally as "+" and "-".



Typical Barrier Strip Connector



Typical Terminal Strip Connector

8.1.4 Loudspeaker Wire Gauge

The proper conductor size (wire gauge) to use for the loudspeaker cable is primarily a function of the wire length. The general rule is that lower resistance, in relation to the loudspeaker's impedance, is better. To achieve this, use larger conductor sizes for longer lengths of cable and for lower impedance loudspeaker loads.

To provide a sufficient damping factor (DF) for low frequency drivers, use loudspeaker cable with conductor sizes per the following chart. For cable lengths over 200 feet at 8 ohms, over 100 feet at 4 ohms, and over 50 ft at 2 ohms, the conductor sizes required for an adequate damping factor are rarely practical for physical and cost reasons. While it is recommended to avoid such situations the most practical wire gauge for these situations is 10 AWG / 6 mm^2

Loudspeaker Cable Conductor Size

Maximum Cable Length	Nominal Loudspeaker Z	AWG Size	Metric Size mm^2
50 ft / 15 m	8 ohm	14	2.5
100 ft / 30 m	8 ohm	12	4
200 ft / 60m	8 ohm	10	6
> 200 ft / > 60m	8 ohm	Not Recommended	Not Recommended
50 ft / 15m	4 ohm	12	4
100 ft / 30m	4 ohm	10	6
> 100 ft / > 30m	4 ohm	Not Recommended	Not Recommended
50 ft / 15m	2 ohm	10	6
> 50 ft / > 15m	2 ohm	Not Recommended	Not Recommended

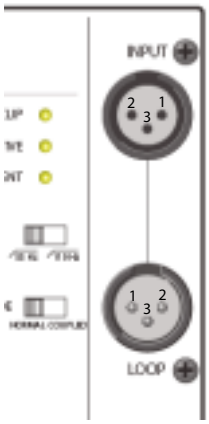
(AWG = American Wire Gauge)

NOTE:
This table is based on achieving adequate damping factor (>20). The associated, worst-case SPL losses are below 0.5 dB and should be considered insignificant.

8.2 Audio Input Connections - Powered Loudspeakers

8.2.1 Input Connection

The audio input connector will be a female XLR-3 or a type of terminal block connector. Where both male and female XLR-3 connectors are provided, the input connection can be made to either. Normally, the female connector is used for the input signal, with the male connector functioning as a loop through connector for routing the audio signal to additional loudspeakers.



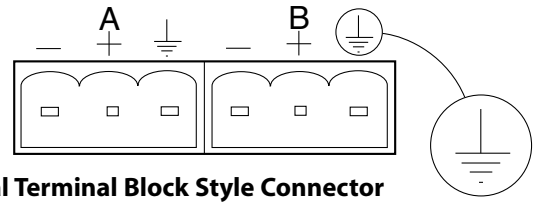
Connect the output from your signal source (mixing console, microphone, preamp, or other line-level source) to the input connector on the rear panel. This is an electronically balanced input designed to be connected to a balanced signal source, but may be connected to an unbalanced source. However, this WILL create a ground loop, possibly causing excessive noise. See Section 8.3.

Pin	Connection
1	Sheild
2	signal plus or cold
3	signal minus or hot

Typical XLR-3 Input and Loop Through Connectors

Terminal Block Connections:

The proper terminal block connector connections are labeled on the loudspeaker, normally as "+", "-", and a shield (ground) symbol, as shown.

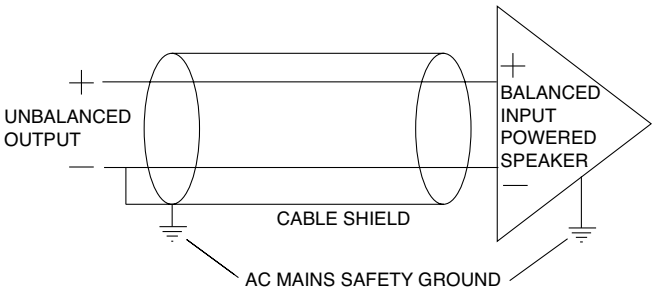


Typical Terminal Block Style Connector and Shield Symbol

8.2.2 Loop or Thru Connector:

Use this connector to "daisy-chain" the input signal to multiple loudspeakers. For terminal block connections, use multiple wires to each terminal for daisy-chaining.

If the signal processing, including the crossover, is built in, full-range loudspeakers and subwoofers may be daisy-chained together from a single signal source.



8.3 Unbalanced Connections

Connection to an unbalanced signal source will create a ground loop that can result in excessive noise (hum and buzz) in the system. The cause of ground loop noise can be difficult to determine, as sometimes it can even be related to the internal design of some equipment.

For unbalanced-to-balanced connection, use an interconnect cable wired as shown above. The important point is that the shield and the negative signal wire from the powered loudspeaker input are connected at the unbalanced output and usually left "floating" at the balanced input. This wiring scheme does not prevent a ground loop; it is simply the best way to directly wire the interconnection. The usual way to eliminate ground loop noise is by inserting an isolation transformer into the signal path.

WARNING: Do not defeat any safety grounding connection to the ac mains supply to reduce ground loop noise. This is a dangerous and, in many locales, an illegal practice. Failure to follow this warning may result in injury or death.

8.3.1 Input Cable

For line level signals, use cable constructed with a shielded, twisted pair. However, the requirements for portable cables and permanently installed cables are quite different. These will depend on the specific application, meaning the environments to which the cable will be exposed: mechanical, chemical (atmospheric), and/or electrical. These conditions will primarily affect the insulation and the cable construction. For both types of applications, follow all local electrical codes.

Section 9 Signal Processing

9.1 Digital Signal Processor Compatibility

The processing EAW determines for its loudspeakers is used to modify performance characteristics that are stable over time and under use. For this reason, precision in the frequency, amplitude, and phase of the settings are critical for reproducing EAW's settings and to maintaining those settings over time. The only type of readily available equipment that can provide these capabilities is a digital signal processor (DSP).

EAW signal processing settings are based on EAW's MX Series digital processors. Unfortunately, the filter algorithms implemented for digital signal processing vary from manufacturer to manufacturer. Therefore, if a different manufacturer's digital signal processor will be used, it is not enough to merely duplicate the MX Series numerical settings. The transfer functions for the settings must be made similar, meaning not only the magnitude response but also the phase response. If the transfer functions do not match closely then this will actually redesign the loudspeaker's performance with arbitrary results. Contact EAW's ASG Department for assistance about your processor's compatibility with the EAW factory settings.

9.2 Unpowered Loudspeakers

9.2.1 Single-amplified Mode

Signal processing, whether analog or digital, is required for all single-amplified loudspeakers to implement the specified high-pass filter (HPF). Digital signal processing is highly recommended as it can provide not only the required high pass filter, but also better equalization tools, signal delay, limiting, and accurate gain settings. With most DSP units, the settings can be protected from unauthorized changes.

Digital Signal Processing:
For certain single-amplified products, DSP is required to achieve the designed performance. This is stated on their specification sheets. In most cases, this design approach was chosen to reduce the complexity of the internal passive components, minimize power losses, and provide far more sophisticated processing to maximize performance. The information in Section 9.2.2 applies to such loudspeakers.

DSP Output Gains:
EAW's published processor output gain settings are determined so as to achieve the following conditions. This also applies to gain settings for loudspeakers where the only processing specified is an HPF (High Pass Filter).

Unprocessed Input Signal: EIA-426B spectrum with an average level of 0 dBu / 0.775 V
Processed Output Signal: average level of 0 dBu / 0.775 V

Amplifier Gain Settings:
The amplifier gain setting for a single-amplified loudspeaker has no bearing on the loudspeaker's inherent performance. Choose the amplifier gain as needed for optimum system dynamic range or as needed for a desired level relative to any other loudspeakers in the system.

9.2.2 Multi-amplified Mode

Signal processing in the form of a digital signal processor (DSP), is required for all multi-amplified products.

Factory Signal Processing Settings:
The signal processing settings determined by EAW should be fully implemented "as is." They will normally provide excellent results in a variety of venues. These settings are determined from careful laboratory measurements and affect many aspects of the loudspeaker's performance.

DSP Output Gains:
EAW's output gain settings are determined so as to achieve this condition.
Unprocessed Input Signal: EIA-426B spectrum with an average level of 0 dBu / 0.775 V
Processed Output Signal: average level of 0 dBu / 0.775 V for the least sensitive passband.

WARNING: Do not under any circumstances use "generic" or your "favorite" crossover, output equalization, or other settings. Arbitrary settings will actually redesign the loudspeaker's performance with the results being equally arbitrary. Always use EAW's recommended signal processing settings. Performance, in terms of frequency response, beamwidth consistency, output level capability, and wavefront coherency is dependent on the EAW-engineered crossover and other processing settings.

Amplifier Gain Settings - IMPORTANT:
In order for EAW signal processing to function properly for multi-amplified loudspeakers, it is critical that all amplifiers for all passbands be set to the same voltage gain, regardless of the amplifiers' power output ratings.

NOTE: The same gain does NOT mean the same input sensitivity, but the same input to output voltage gain. Consult your amplifier manufacturer if this cannot be readily determined. Do not selectively boost or attenuate loudspeaker levels of the amplifiers in order to balance a system. This should be done at the output of the signal processor.

The specific gain setting chosen for the amplifiers has no bearing on the loudspeaker's inherent performance. Choose a gain setting as needed for optimum system dynamic range or as needed for a desired level relative to any other loudspeakers in the system.

9.3 Subwoofer Signal Processing

For subwoofers, a digital signal processor (DSP) is the best method for providing crossover, output equalization, protective high pass filter, and limiting. See Section 9.2.1 for signal processing details. These apply equally to any quantity of subwoofer amplifier channels.

9.4 Unpowered Loudspeakers - Limiters

CAUTION: The assumptions that must be made about how to set a limiter and what a driver's power handling limits are cannot address all conditions of use. As such, limiters cannot provide absolute protection nor provide any guarantee against damage or failure from excessive inputs. At best, they can only provide some degree of protection.

9.4.1 Limiters And Limiting

Limiters can help avoid either of two things, depending on the signal frequency content and the amplifier / driver power ratings. The choice depends on which will be exceeded first.

Exceeding a Loudspeaker's Thermal Limit:

The limiter is used to prevent the amplifier, operating within its capabilities, from exceeding the loudspeaker's capabilities.

Exceeding the Amplifier's Output Limit (Clipping).

The limiter is used to prevent the amplifier from exceeding its capabilities, even though the loudspeaker is operating within its capabilities.

9.4.2 MX8750 Limiter Design

EAW has done the work of determining the MX8750's limiter characteristics with real audio signals by performing a number of tests on its behavior with real audio signals and analyzing how this relates to both loudspeaker power handling limits and sonic performance. Based on measurement and analysis of the above variables, EAW Engineering was able to formulate a set of "rules" for setting MX8750 limiters. Listening tests determined settings that maintain good sound quality while maximizing protection. These rules are incorporated into the MX8750 Output Limiter Wizard. See Section 9.4.3.

Because limiters differ in their behaviors from manufacturer to manufacturer, EAW can only provide limiter settings for its own MX Series of processors. These are the only ones on which the required analysis was done to optimize settings. As such, EAW limiter thresholds are only valid for use with an EAW MX8750 digital processor and with amplifiers that have or are set to 32 dB gain for all passbands. This assumes that the factory gain settings for the processor outputs are also used. For amplifiers with gain other than 32 dB and for loudspeakers where no factory limiter settings exist, use the MX8750 Output Limiter Wizard to determine the correct limiter threshold settings. See Section 9.4.3.

9.4.3 MX8750 Output Limiter Wizard

The MX8750 Output Limiter Wizard is an Excel-based program intended to provide limiter settings that can help protect loudspeaker drivers from damage or failure. The program can be downloaded from the EAW web site.

Apply the settings determined from the Wizard to the MX8750 using the MXWare control program.

NOTE: The Wizard's settings apply only to the MX8750. They should not be applied to other limiters for the reasons stated above.

9.5 Powered Loudspeakers

9.5.1 External Processing

Powered loudspeakers have built-in, factory set, signal processing. The settings were determined to provide the maximum performance in terms of frequency response, phase response, power handling, and audio quality. In some cases, acoustical conditions, program material, or personal taste may require additional equalization or signal processing, such as signal delay. In such cases, use external analog or digital equalizers or other signal processing. Avoid radical or extreme equalizer settings.

9.5.2 Limiters

Powered loudspeakers have built-in, factory set limiting. The limiter characteristics and settings were determined to provide the maximum protection possible, to minimize the sonic effects, and to integrate closely with the amplifier capabilities. Defeating such limiting and/or using an external limiter could expose the drivers or amplifiers to operation beyond their limits.

External limiting should only be used to limit the maximum output to some level below that allowed by the factory limiting. In this case, choose limiter settings that minimize the sonic effects when the limiting is active.

Section 10 Operating the Loudspeaker

10.1 Operating Limits

10.1.1 Operator Responsibility - Preventing Damage

It is the responsibility of the audio system operator to operate the loudspeaker within its limits and capabilities. This is the only way to ensure that the loudspeaker is not stressed beyond its limits to the point of damage or failure.

10.1.2 Loudspeaker Limits - Preventing Damage

Operation beyond the loudspeaker's capabilities usually includes, but is not limited to, one or more of the following conditions:

1. Amplifier clipping
2. Voltage input in excess of the specified rms voltage limit
3. Peak voltage input in excess of twice the specified voltage limit
4. Noticeable distortion
5. Mechanical noise (such as a cone bottoming out)
6. A suitable means for determining these conditions is highly recommended. At a minimum, the operator should have a meter display calibrated to indicate when the loudspeaker's maximum rms voltage limits will be exceeded. This assumes amplifiers are not being driven into clipping at these limits.

10.2 Acoustic Level Precautions

CAUTION: If exposure to levels higher than 100 dB will be prolonged, wear earplugs in the ear canals or ear protectors over the ears.

ATTENTION: Si l'exposition à un niveau sonore supérieur à100 dB doit être proongée, portez des protections auditives dans les oreilles ou sur les oreilles.

CAUTELA: In caso di esposizione prolungata a livelli superiori a 100 dB, si consiglia l'impiego di tappi per le orecchie oppure di indossare cuffie protetive.

PRECAUCION: Si a a quedar expuesto a niveles superiores a los 100 dB durante un periodo prolongado de tiempo, colóquese tapones o cascos de protección en los oídos.

GEFAHR: Wenn Sie längere Zeit höheren Pegeln als 100 dB ausgesetzt sind, sollten Se einen Gehörschutz inden Gehörgängen oder über den Ohren tragen.

10.2.1 Operating Levels

EAW loudspeakers, when appropriately powered, are capable of producing sound levels that are potentially damaging to your hearing. For a single loudspeaker and depending on the product, this can easily occur within 50 ft / 15 m of the loudspeaker. When used in multiples, such levels can be reached at considerable distances from the loudspeakers.

Avoid operating the loudspeaker systems at levels that exceed 100 dB PL in the listening area for more than short periods. One way to do this for musical performances is to provide some moderate boost at the very low and to a lesser extent, at the very high frequencies. Judicious applications of this type of equalization can make a loudspeaker sound significantly louder than it actually is. Both your listeners and your loudspeakers will thank you. It is recommended that a sound level meter be used to verify listening levels. Relatively inexpensive meters are available that provide adequate accuracy for this purpose.

Be aware that audience members will not have the benefit of ear protection. Therefore, if you need to use ear protection because the levels are loud, the audience also needs ear protection. The remedy is to reduce the system volume to a safer listening level.

10.3 Testing and Test Signals

Loudspeakers are designed to reproduce primarily speech and music audio signals. Such signals are highly variable from moment to moment in their level, frequency content, and phase. Accepted loudspeaker measurements and tests that are accurate and consistent are possible only with signals where the level, frequency content, and phase are accurately known and consistent at all times. Such signals include sine waves, swept tones, pink noise, white noise, and other constant level test signals. These are much harder on a loudspeaker than speech and music signals and therefore the potential for damage is much greater. Keep in mind that the parameters of electronic limiters are also designed for the characteristics of speech and music signals - not test signals. Their capability to protect the loudspeaker is considerably reduced using test signals.

Take certain precautions to avoid loudspeaker damage when using test signals. Never use power inputs that exceed 50% (-3 dB) of the loudspeaker's power rating and do not test at this level for more than a few moments. For sine waves and for any other test signals that must be used for extended periods of time, the input to the loudspeaker should be kept below 10% (-10 dB) of the loudspeaker's power rating.

10.4 Measurements

The SmaartLive™ computer program, from SIA Software Company, is an ideal tool to use to measure and optimize a loudspeaker system or loudspeaker array for a particular venue. This is a fast, yet sophisticated, process that will indicate problem areas due to particular venue characteristics. Usually it is a matter of applying small amounts of equalization to adjust significant anomalies.

While there are a number of other commercially available and quite sophisticated measurement programs, they are not specifically optimized for measurements of loudspeakers in use, but rather for laboratory type measurements. On the other hand SmaartLive provides the major benefits of using a test signal, including music, for the measurements and providing continuous, real-time data for making system adjustments.

A demo version of SmaartLive is available at www.siasoft.com.

10.5 Operating Tips To Help Avoid Loudspeaker Damage

1. Do NOT drive any of your electronic equipment into clipping, particularly the power amplifiers. This can easily damage the loudspeaker.
2. If driven into clipping, even an amplifier with a power output rating lower than EAW's power rating can cause damage to a loudspeaker.
3. Avoid sustained microphone feedback. This can quickly cause driver failure.
4. Avoid extreme boosts on equalizers as these can cause excessive input to the drivers at the boosted frequencies. Generally, cutting frequencies is preferred to correct for frequency response problems. These problems include attenuating feedback frequencies or reducing excessive energy at certain frequencies due to room acoustics.
5. With appropriate signal processing, your loudspeaker should produce exceptionally good sound. If used in a room with problematic acoustics, there is little you can do to overcome these problems with electronic adjustments. Your best solution is careful placement and aiming of the loudspeaker so that most of the sound is directed only at the audience.
6. EAW loudspeakers are capable of sound levels that can be damaging to human hearing. Take precautions so that audiences are not exposed to such levels. If you must expose yourself to these kinds of volume levels, wear adequate hearing protection.
7. Take care when moving or lifting the loudspeaker. Careless handling can result in equipment damage, injury, or death.
8. Avoid exposing the loudspeaker to extreme cold (below freezing temperature). If you must operate the loudspeaker in a cold environment, warm it up by sending a full-range, low-level signal through it for about 15 minutes prior to high-power operation.

Section 11 Inspection and Maintenance

Your EAW loudspeaker should require little to no regular attention for normal use. However, performing regular inspections and maintenance can ensure your loudspeaker remains in optimum operating and cosmetic condition.

11.1 Periodic Inspection

DANGER: If there is any question about the integrity or capability of any part used to rig a loudspeaker to perform its intended function, immediately remove it from service for repair or replacement.

DANGER: En cas de doute sur l'intégrité ou la capacité d'un des éléments à assurer correctement sa fonction dans un montage ou une suspension d'enceinte(s), retirez immédiatemnt ce ou ces éléments de la structure, faitesles vérifier ou réparer par un personnel compétent, ou remplacez-les.

PERICOLO: Se dovesse esistere qualche dubbio riguardo all'integrità o alla capacità di qualsiasi parte utilizzata nel montaggio / sospensine di un diffusore, di essere in grado di espltare la funzione alla quale è preposta, è necessario rimuoverla per verificarne la condizione ed effettuare la riparazione o la sostituzione.

PELIGRO: Si tiene cualquier duda acerca de la integridad o capaciad de cualquier pieza o aparato para realizar l función para la que ha sido diseñado a la hora de usarlo para el anclaje de un altavoz, sustitúyalo inmediatamente por otro y/o envíelo al servicio técnico para su reparación.

GEFAHR: Wenn ein Zweifel in Bzug auf die Sicherheit bei einem Bauteil aufkomm, das zum Rigging eines Lautsprechers verwendet werden soll, so muss dieses Bauteil sofort repariert oder ersetzt werden.

11.1.1 Overall Physical Inspection

Perform complete and thorough inspections of the loudspeaker on a routine, periodic basis. The interval between inspections and scope of the inspections will depend on the installation and the conditions of use. It is strongly recommended that the interval between inspections not exceed 1 year.

Inspect for problems and abnormalities, including, but not limited to:

1. Cracks or breaks in the wood
2. Cracks or bends in the grille
3. Loose or missing hardware
4. Damaged mounting/rigging hardware and components
5. Loose input connections

11.1.2 Rigging Inspection

Specifically and thoroughly inspect all rigging hardware and components used to support the loudspeaker. Do this on a routine, periodic basis, whether components are integral with or external to the loudspeaker or whether factory or user-supplied. The interval between inspections and scope of the inspections will depend on the installation and the conditions of use. The rigging inspection interval must not exceed 1 year.

Inspect for problems and abnormalities including, but not limited to:

1. Bends
2. Breaks
3. Broken parts
4. Corrosion
5. Cracks
6. Cracks in welded joints
7. Deformation
8. Denting
9. Wear
10. Holes
11. Loose or missing parts or fasteners

11.2 Periodic Performance Testing

Periodically perform listening tests and/or formal acoustical measurements for proper performance. The interval between such tests will depend on the frequency of system usage and the conditions of use.

A simple test is to play a CD through it using well-defined, articulate, wide-range program material. Listen to ensure all drivers are working properly and for any evidence of distortion or other extraneous sounds. Test at several volume levels: very low, normal, and high.

All drivers should be tested for functionality and proper performance. A sine wave sweep at approximately 10% of rated power will usually reveal driver and/or enclosure problems in the form of distortion, buzzes, or rattles.

11.3 Periodic Maintenance

11.3.1 Periodic Acoustical Maintenance

Normally, no periodic maintenance, beyond the testing and inspections detailed in Sections 11.1 and 11.2, is required to maintain the acoustical performance.

11.3.2 Routine Maintenance

Periodically do routine maintenance on the loudspeaker. The interval between maintenance times and the scope of the maintenance will depend on the installation and the conditions of use. It is strongly recommended that maintenance intervals not exceed 1 year.

Maintenance shall include but not be limited to:

1. Repair or replace of any item determined by inspection to be sub-standard for their intended use.
2. Replace any load supporting parts whose load handling integrity is the least bit questionable.
3. Lubricate all parts subject to friction using WD-40, Scott oil FS365, or similar. These are water-based lubricants with machine oil, surfactant, an anti-rust treatment.

4. Tighten all accessible screws, nuts, and bolts, especially those that are part of the rigging hardware.
5. Clean the exterior surfaces of the enclosure and rigging system as required, this largely depending on the type of "dirt". Normally, use a cloth dampened with mild soapy water to remove dust, dirt, food spills or similar. Avoid getting moisture into any of the openings of the cabinet, particularly where the drivers are located. After cleaning, use a clean dry cloth to remove any excess moisture and treat metal parts and the rigging system with lubricant to prevent rusting.

CAUTION: For powered loudspeakers, do cleaning only when the power is turned off.

CAUTION: To avoid damaging the exterior finishes do not use cleaning solvents or abrasives.

11.3.3 Cosmetic Maintenance

While the paint finish and the wood used for the enclosures are of high quality and durability, mars, marks, scratches, and other blemishes may appear from normal handling. For cosmetically damaged wood, repair such damage using common woodworking methods and materials as appropriate for the damage. Scratches on the enclosure or hardware can be painted over with an outdoor latex paint or simply colored in with a "Sharpie" or artist's marking pen. More serious gouges or dents should be sanded out, filled with wood putty, and repainted. Black touch-up paint in pints (part #810050) or quarts (part #810049) is available from the EAW Service Department. Tips for repainting are on EAW's website.

11.3.4 Long Term Maintenance

For approximately five years, only routine inspections, performance testing, and maintenance are normally required to maintain the loudspeaker's performance. Over a longer period, there are possible, additional maintenance issues:

Ferrofluid:

Some EAW loudspeaker models employ compression drivers with Ferrofluid-filled magnetic gaps. This magnetic fluid fills the loudspeaker's magnetic gap to cool the driver by transferring heat from the voice coil through the fluid to the magnet structure. Over time, the Ferrofluid can thicken enough to affect the acoustical response and should be replaced. For normal conditions of use, Ferrofluid will retain its original properties for 6 years or more. However, if a loudspeaker is driven very hard on a daily basis, the Ferrofluid may retain its properties for only 2 years.

When either of these conditions of use apply, replace the Ferrofluid to restore performance. Contact the EAW Service Department for instructions.

Grille Material:

Some EAW loudspeaker grilles are backed by either cloth or foam. This material can deteriorate over time due to various environmental conditions and effects, particularly if installed outdoors. If these conditions of use apply, periodically inspect and replace any deteriorated grille material. Contact the EAW Service Department for materials and instructions.

Cosmetics:

Various finishes are used on loudspeaker enclosures depending on the product and its applications. While these finishes are designed to be durable over long periods, like any applied finish, they can deteriorate over time, largely depending on the conditions of use. While this deterioration will not affect performance, refinish the loudspeaker as needed for aesthetic reasons. Contact the EAW Service Department for instructions.

Section 12 Troubleshooting

12.1 Rigging Problems

Because of the potential serious consequences and liabilities due to faulty rigging, contact the EAW Service Department to determine the appropriate service solution for any problems with the rigging hardware integral to the enclosure or EAW rigging accessories.

12.2 Enclosure and Integral Hardware

Enclosure problems, such as loose hardware, faulty joints, or other structural problems, will usually be heard as distinct buzzes, rattles, or other unwanted noises. To test for enclosure problems, use a sine wave signal manually swept on the LF sub-system. The input level should be varied, because certain problems can be level as well as frequency specific. However, in no circumstances should the sine wave level be higher than 6 dB below rated power (equal to no higher than 1/2 rated rms input voltage). It may be possible to field-repair some enclosure problems.

12.3 Cosmetics

While the paint finish and the wood used for the enclosures is of high quality and durability, mars, marks, and other blemishes may appear from normal handling for an installation. For paint touchup, use good quality latex paint. For a more permanent and cosmetically correct appearance, contact the EAW Service Department for the paint specifications or to purchase small quantities for touch-up. For cosmetically damaged wood, use common woodworking methods and materials as appropriate for the damage.

12.4 Isolated Sonic Problems

12.4.1 What is Involved

Loudspeakers invariably consist of an input panel, internal components and wiring, drivers, and an enclosure. All internal components - drivers, crossover/filters, and wiring - are accessible from the front of the enclosure by detaching the grille and removing the MF/HF horn and/or woofers.

Troubleshooting for various performance problems usually involves isolating the problem to one of these areas. In most cases, the fault can be clearly isolated to one of them and that will determine the appropriate action for servicing.

1. Drivers
2. Input panel, internal crossover/filter components, and wiring (unpowered loudspeakers)

3. Internal electronics (powered loudspeakers)
4. Enclosure and integral hardware

If no problems can be traced to any of these items, look for problems with external electronics or cabling. Troubleshooting these items is beyond the scope of this manual.

12.4.2 Drivers

A faulty driver will usually cause readily audible distortions or other unwanted noises. In other cases, they may stop functioning. Use your ears and test signals or other sound source to determine which one is at fault. Normally, a faulty driver requires return for service or replacement by EAW.

12.4.3 Input Panel and Wiring

Faults with these items will usually cause a driver to stop working or be intermittent.

For unpowered loudspeakers:

Check wiring continuity from the input jacks to the crossovers and from the crossovers to the driver terminals. Many faults in this area can be field-repaired.

For powered loudspeakers:

Check wiring continuity at the input jacks and from the amplifier(s) to the driver terminals. Many faults in this area can be field-repaired.

12.4.4 Crossovers

NOTE: This section does not apply to powered loudspeakers.

Faults with these items will usually cause drivers to stop working, be intermittent, or alter the frequency response. If a crossover fault is suspected, the nature of the fault determines the action. A poor connection or obviously open circuited, shorted, or physically damaged component (such as from overheating) can be relatively easy to find and field-repair. An improperly functioning component may require more sophisticated troubleshooting, as the fault will likely be frequency dependent. A faulty crossover is best returned for service or replacement by EAW.

12.4.5 Enclosure and Integral Hardware

Enclosure problems, such as loose hardware, faulty joints, or other structural problems, will usually be heard as distinct buzzes, rattles, or other unwanted noises. To test for enclosure problems, use a sine wave signal manually swept on the LF sub-system. The input level should be varied, because certain problems can be level as well as frequency specific. However, in no circumstances should the sine wave level be higher than 6 dB below rated power (equal to no higher than 1/2 rated rms voltage). It may be possible to field-repair some enclosure problems.

12.5 Problem Symptoms

Loudspeaker difficulties usually fall into one of the following categories. The causes for each problem are listed in the most likely order of probability.

12.5.1 No Sound or Low Output

1. Loudspeaker cables or connectors are mis-wired or faulty: Check all cabling. Refer to these instructions for correct loudspeaker cable connections. The best way to check a suspect cable is to swap it with a known good cable. Read the loudspeaker's input panel to verify correct cable connections.
2. Electronic equipment is not turned on or level controls are not adjusted properly: Make sure that all equipment in the signal path is powered up and that all controls are set to appropriate levels for normal operation.
3. Loudspeaker is not working: Connect the signal cable to a known good loudspeaker leaving all equipment set to the same levels. If the problem disappears, the loudspeaker is probably not working. Contact EAW Service for appropriate troubleshooting.

12.5.2 Distorted Sound

1. The power amplifier is clipping: The signal level is exceeding the limits of your system and you must reduce the level.
2. Other electronic equipment is clipping: Ensure that no equipment in the signal chain is being overdriven. For example: input(s) or summing bus in the mixing console, equalizers, etc.
3. Driver(s) not working properly: Contact EAW Service for appropriate troubleshooting.

12.5.3 Partial Sound (Some Frequency Bands Missing)

1. Incorrect EQ settings in the electronic equipment: Ensure all EQ settings and filters on the mixing console or preamplifier and on other equipment are set for normal operation. Ensure level controls on electronic crossovers and associated amplifiers are correctly set and that all cables and connections for such equipment are working properly.
2. Incorrect processor configuration: Make sure the processor configuration is correct for the loudspeaker and its intended mode of operation. This includes settings made using software for powered loudspeakers.
3. For unpowered loudspeakers: Incorrect mode switch settings on the loudspeaker input panel. Ensure this switch is set for the operating mode you are using: single, bi-amplified or tri-amplified.
4. For powered loudspeakers: Incorrect control switch settings on the loudspeaker input panel. Ensure switch settings are correct for the application.
5. Driver(s) not working properly: Contact EAW Service for appropriate troubleshooting.
6. The crossover network inside the loudspeaker is not working properly: Contact EAW Service for appropriate troubleshooting.

12.5.4 Powered Loudspeaker Electronics

Some faults with the electronics will normally be indicated by an Amplifier Fault indicator. Others should clearly be indicated by an outright malfunction in the sound output. Such malfunctions can include:

1. No or very low sound output
2. Highly distorted sound
3. Bad frequency response, such as the loss of low or high frequencies
4. Intermittent sound
5. Excessive electronic noise

In the case of malfunctioning electronics, contact the EAW Service Department for troubleshooting and repair instructions.

Section 13 Contacting EAW

In this manual we have tried to answer any questions you may have about EAW loudspeakers. Should you need further assistance, please do not hesitate to contact us. You can contact us in several different ways.

13.1 Operating Questions

For questions about configuring or operating the loudspeaker, contact:

EAW Applications Support Group
Tel: +1 508 234 6158
Tel: 800 992 5013
Fax: +1 508 234 8251
e-mail: asg@eaw.com

13.2 Service Information

For questions about troubleshooting or servicing the loudspeaker, contact:

EAW Service Department
Shipping: One Main Street
Whitinsville , MA 01588 USA
Tel: +1 508 234 6001
Tel: 800-992-6001
Fax: +1 508 234 3776
e-mail: service@eaw.com

13.3 General Information

For all other information:

Mail: Eastern Acoustic Works
One Main Street
Whitinsville, MA 01588 USA
Tel: +1 508 234 6158
Tel: 800 992 5013
Fax: +1 508 234 8251
Web Site: http://www.eaw.com
e-mail: info@eaw.com

Section 14 Warranty

Your EAW loudspeaker is warranted against factory defects for these periods from the date of installation:

Six (6) years for loudspeakers and drivers
Five (5) years for weather protected (WP) loudspeakers products
Two (2) years ac powered electronics

See the warranty card packaged with the product for the complete warranty statement and warranty service details.

IMPORTANT: Retain your sales receipt as this is proof of your warranty coverage.

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EAW
EASTERN ACOUSTIC WORKS

One Main Street, Whitinsville, MA 01588 ***tel:*** 800 992 5013 / 508 234 6158 ***fax:*** 508 234 8251 ***web:*** www.eaw.com

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EAW is the worldwide technological and market leader in the design and manufacture of high-performance professional loudspeaker systems.